SEQUENCE LISTING

<110> DIVERSA CORPORATION
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ADHIKARI, Robert

<120> CATALASES

<130> DIVER1100-4

<140> US 09/884,889
<141> 2001-06-19

<150> US 09/412,347
<151> 1999-10-05

<150> US 08/951,844
<151> 1997-10-16

<150> US 08/674,887
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<211> 2262
<212> DNA
<213> Alcaligenes (Deleya) aquamarinus

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cctgtcatgc acggtggtaa cacctcgacc ggtacttcca acaaagattg gtggccggaa 180

gggttgaacc tggatatttt gcatcagcaa gatcgcaaat cagacccgat ggatccggat 240

ttcaactacc gtgaagaagt acgcaagctc gatttcgacg cgctgaagaa agatgtccac 300

gcgttgatga ccgatagcca agagtggtgg cccgctgact gggggcacta cggcggtttg 360

atgatccgta tggcttggca ctccgctggc acctaccgta ttgctgatgg ccgtgggggc 420

ggtggtaccg gaagccagcg ctttgcaccg ctcaactcct ggccggacaa cgtcagcctg 480

gataaagcgc gccgtctgct gtggccgatc aagaagaagt acggcaacaa aatcagctgg 540

gcagacctga tgattctggc tggcaccgtg gcttatgagt ccatgggctt acctgcttac 600

ggcttctctt tcggccgcgt cgatatttgg gaacccgaaa aagatatcta ctggggtgac 660

gaaaaagagt ggctggcacc ttctgacgaa cgctacggcg acgtgaacaa gccagagacc 720

atggaaaacc cgctggcggc tgtccaaatg ggtctgatct atgtgaaccc ggaaggtgtt 780

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gcgatgaacg acgaaaaaac cgcagccctc acagctggcg gccacaccgt cggtaattgt 900

cacggtaatg gcaatgcctc tgcgttagcc cctgacccaa aagcctctga cgttgaaaac 960

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accaaagtga tgaacgccga ccgtttcgac gtcgcgtcgt aa 2262

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<211> 753
<212> PRT
<213> Alcaligenes (Deleya) aquamarinus

<400> 6

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Glu Arg Ala Met Ser Gly Lys Cys Pro Val Met His Gly Gly Asn Thr
35 40 45

Ser Thr Gly Thr Ser Asn Lys Asp Trp Trp Pro Glu Gly Leu Asn Leu
50 55 60

Asp Ile Leu His Gln Gln Asp Arg Lys Ser Asp Pro Met Asp Pro Asp
65 70 75 80

Phe Asn Tyr Arg Glu Glu Val Arg Lys Leu Asp Phe Asp Ala Leu Lys
85 90 95

Lys Asp Val His Ala Leu Met Thr Asp Ser Gln Glu Trp Trp Pro Ala

100 105 110

Asp Trp Gly His Tyr Gly Gly Leu Met Ile Arg Met Ala Trp His Ser
115 120 125

Ala Gly Thr Tyr Arg Ile Ala Asp Gly Arg Gly Gly Gly Gly Thr Gly
130 135 140

Ser Gln Arg Phe Ala Pro Leu Asn Ser Trp Pro Asp Asn Val Ser Leu
145 150 155 160

Asp Lys Ala Arg Arg Leu Leu Trp Pro Ile Lys Lys Lys Tyr Gly Asn
165 170 175

Lys Ile Ser Trp Ala Asp Leu Met Ile Leu Ala Gly Thr Val Ala Tyr
180 185 190

Glu Ser Met Gly Leu Pro Ala Tyr Gly Phe Ser Phe Gly Arg Val Asp
195 200 205

Ile Trp Glu Pro Glu Lys Asp Ile Tyr Trp Gly Asp Glu Lys Glu Trp
210 215 220

Leu Ala Pro Ser Asp Glu Arg Tyr Gly Asp Val Asn Lys Pro Glu Thr
225 230 235 240

Met Glu Asn Pro Leu Ala Ala Val Gln Met Gly Leu Ile Tyr Val Asn
245 250 255

Pro Glu Gly Val Asn Gly His Pro Asp Pro Leu Arg Thr Ala Gln Gln
260 265 270

Val Leu Glu Thr Phe Ala Arg Met Ala Met Asn Asp Glu Lys Thr Ala
275 280 285

Ala Leu Thr Ala Gly Gly His Thr Val Gly Asn Cys His Gly Asn Gly
290 295 300

Asn Ala Ser Ala Leu Ala Pro Asp Pro Lys Ala Ser Asp Val Glu Asn
305 310 315 320

Gln Gly Leu Gly Trp Gly Asn Pro Asn Met Gln Gly Lys Ala Ser Asn
325 330 335

Ala Val Thr Ser Gly Ile Glu Gly Ala Trp Thr Thr Asn Pro Thr Lys
340 345 350

Phe Asp Met Gly Tyr Phe Asp Leu Leu Phe Gly Tyr Asn Trp Glu Leu
355 360 365

Lys Lys Ser Pro Ala Gly Ala His His Trp Glu Pro Ile Asp Ile Lys
370 375 380

Lys Glu Asn Lys Pro Val Asp Ala Ser Asp Pro Ser Ile Arg His Asn
385 390 395 400

Pro Ile Met Thr Asp Ala Asp Met Ala Ile Lys Val Asn Pro Thr Tyr
405 410 415

Arg Ala Ile Cys Glu Lys Phe Met Ala Asp Pro Glu Tyr Phe Lys Lys
420 425 430

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Thr Phe Ala Lys Ala Trp Phe Lys Leu Thr His Arg Asp Leu Gly Pro
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Lys Ser Arg Tyr Ile Gly Pro Glu Val Pro Ala Glu Asp Leu Ile Trp
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Gln Asp Pro Ile Pro Ala Gly Asn Thr Asp Tyr Cys Glu Glu Val Val
465                 470                 475                 480

Lys Gln Lys Ile Ala Gln Ser Gly Leu Ser Ile Ser Glu Met Val Ser
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Thr Ala Trp Asp Ser Ala Arg Thr Tyr Arg Gly Ser Asp Met Arg Gly
            500                 505                 510

Gly Ala Asn Gly Ala Arg Ile Arg Leu Ala Pro Gln Asn Glu Trp Gln
        515                 520                 525

Gly Asn Glu Pro Glu Arg Leu Ala Lys Val Leu Ser Val Tyr Glu Gln
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Ile Ser Ala Asp Thr Gly Ala Ser Ile Ala Asp Val Ile Val Leu Ala
545                 550                 555                 560

Gly Ser Val Gly Ile Glu Lys Ala Ala Lys Ala Ala Gly Tyr Asp Val
                565                 570                 575

Arg Val Pro Phe Leu Lys Gly Arg Gly Asp Ala Thr Ala Glu Met Thr
            580                 585                 590

Asp Ala Asp Ser Phe Ala Pro Leu Glu Pro Leu Ala Asp Gly Phe Arg
        595                 600                 605

Asn Trp Gln Lys Lys Glu Tyr Val Val Lys Pro Glu Glu Met Leu Leu
    610                 615                 620

Asp Arg Ala Gln Leu Met Gly Leu Thr Gly Pro Glu Met Thr Val Leu
625                 630                 635                 640

Leu Gly Gly Met Arg Val Leu Gly Thr Asn Tyr Gly Gly Thr Lys His
                645                 650                 655

Gly Val Phe Thr Asp Cys Glu Gly Gln Leu Thr Asn Asp Phe Phe Val
            660                 665                 670

Asn Leu Thr Asp Met Gly Asn Ser Trp Lys Pro Val Gly Ser Asn Ala
        675                 680                 685

Tyr Glu Ile Arg Asp Arg Lys Thr Gly Ala Val Lys Trp Thr Ala Ser
    690                 695                 700

Arg Val Asp Leu Val Phe Gly Ser Asn Ser Leu Leu Arg Ser Tyr Ala
705                 710                 715                 720

Glu Val Tyr Ala Gln Asp Asp Asn Gly Glu Lys Phe Val Arg Asp Phe
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Val Ala Ala Trp Thr Lys Val Met Asn Ala Asp Arg Phe Asp Val Ala
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Ser

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<211> 2238
<212> DNA
<213> Microscilla furvescens

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tggcccaaca tgctcaacct cggcatctta cgccaacatt catcgctatc ggacccaaac 180

gacccggatt ttgactatgc cgaagagttt aagaagctag atctggcagc ggttaaaaag 240

gacctggcag cgctaatgac agattcacag gactggtggc cagcagatta cggtcattat 300

ggccccttct ttatacgcat ggcgtggcac agcgccggca cctaccgtat cggtgatggc 360

cgtggtggcg gtggctccgg ctcacagcgc ttcgcgcctc tcaatagctg gccagacaat 420

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aaaacttttg gttttgcagg tggcagagca gatgtatggg agcctgaaga agatgtatac 600

tggggagcag aaaccgaatg gctgggagac aagcgctatg aaggtgaccg agagctcgaa 660

aatcccctgg gagccgtaca aatgggactc atctatgtaa accccgaagg acccaacggc 720

aagccagacc ctatcgctgc tgcgcgtgat attcgtgaga cttttggccg aatggcaatg 780

aatgacgaag aaaccgtggc tctcatagcg ggtggacaca ccttcggaaa aacccatggt 840

gctgccgatg cggagaaata tgtgggccga gagcctgccg ccgcaggtat tgaagaaatg 900

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gacggtgccg gggctggcac ataccggat gcacatgatc ccagcaagtc gcacgctcca 1140

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cggtttgatc tgaaataa 2238

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<212> PRT
<213> Microscilla furvescens

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Gly Gly Thr Lys Asn Arg Asp Trp Trp Pro Asn Met Leu Asn Leu Gly
35 40 45

Ile Leu Arg Gln His Ser Ser Leu Ser Asp Pro Asn Asp Pro Asp Phe
50 55 60

Asp Tyr Ala Glu Glu Phe Lys Lys Leu Asp Leu Ala Ala Val Lys Lys
65 70 75 80

Asp Leu Ala Ala Leu Met Thr Asp Ser Gln Asp Trp Trp Pro Ala Asp
85 90 95

Tyr Gly His Tyr Gly Pro Phe Phe Ile Arg Met Ala Trp His Ser Ala
100 105 110

Gly Thr Tyr Arg Ile Gly Asp Gly Arg Gly Gly Gly Gly Ser Gly Ser
115 120 125

Gln Arg Phe Ala Pro Leu Asn Ser Trp Pro Asp Asn Ala Asn Leu Asp
130 135 140

Lys Ala Arg Leu Leu Leu Trp Pro Ile Lys Gln Lys Tyr Gly Arg Lys
145 150 155 160

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            180                 185                 190

Trp Glu Pro Glu Glu Asp Val Tyr Trp Gly Ala Glu Thr Glu Trp Leu
        195                 200                 205

Gly Asp Lys Arg Tyr Glu Gly Asp Arg Glu Leu Glu Asn Pro Leu Gly
    210                 215                 220

Ala Val Gln Met Gly Leu Ile Tyr Val Asn Pro Glu Gly Pro Asn Gly
225                 230                 235                 240

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Arg Met Ala Met Asn Asp Glu Glu Thr Val Ala Leu Ile Ala Gly Gly
            260                 265                 270

His Thr Phe Gly Lys Thr His Gly Ala Ala Asp Ala Glu Lys Tyr Val
        275                 280                 285

Gly Arg Glu Pro Ala Ala Ala Gly Ile Glu Glu Met Ser Leu Gly Trp
    290                 295                 300

Lys Asn Thr Tyr Gly Thr Gly His Gly Ala Asp Thr Ile Thr Ser Gly
305                 310                 315                 320

Leu Glu Gly Ala Trp Thr Lys Thr Pro Thr Gln Trp Ser Asn Asn Phe
                325                 330                 335

Phe Glu Asn Leu Phe Gly Tyr Glu Trp Glu Leu Thr Lys Ser Pro Ala
            340                 345                 350

Gly Ala Tyr Gln Trp Lys Pro Lys Asp Gly Ala Gly Ala Gly Thr Ile
        355                 360                 365

Pro Asp Ala His Asp Pro Ser Lys Ser His Ala Pro Phe Met Leu Thr
    370                 375                 380

Thr Asp Leu Ala Leu Arg Met Asp Pro Asp Tyr Glu Lys Ile Ser Arg
385                 390                 395                 400

Arg Tyr Tyr Glu Asn Pro Asp Glu Phe Ala Asp Ala Phe Ala Lys Ala
                405                 410                 415

Trp Tyr Lys Leu Thr His Arg Asp Met Gly Pro Lys Val Arg Tyr Leu
            420                 425                 430

Gly Pro Glu Val Pro Gln Glu Asp Leu Ile Trp Gln Asp Pro Ile Pro
        435                 440                 445

Asp Val Ser His Pro Leu Val Asp Glu Asn Asp Ile Glu Gly Leu Lys
    450                 455                 460

Ala Lys Ile Leu Glu Ser Gly Leu Thr Val Ser Glu Leu Val Ser Thr
465                 470                 475                 480
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            500                 505                 510

Asn Asn Pro Gln Gln Leu Ala Arg Val Leu Lys Thr Leu Glu Gly Ile
        515                 520                 525

Gln Glu Asp Phe Asn Gln Ala Gln Ser Asp Asn Lys Ala Val Ser Leu
    530                 535                 540

Ala Asp Leu Ile Val Leu Ala Gly Cys Ala Gly Val Glu Lys Ala Ala
545                 550                 555                 560

Lys Asp Ala Gly His Glu Val Gln Val Pro Phe Asn Pro Gly Arg Ala
                565                 570                 575

Asp Ala Thr Ala Glu Gln Thr Asp Val Glu Ala Phe Glu Ala Leu Glu
            580                 585                 590

Pro Ala Ala Asp Gly Phe Arg Asn Tyr Ile Lys Pro Glu His Lys Val
        595                 600                 605

Ser Ala Glu Glu Met Leu Val Asp Arg Ala Gln Leu Leu Ser Leu Ser
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Ala Pro Glu Met Thr Ala Leu Val Gly Gly Met Arg Val Leu Gly Thr
625                 630                 635                 640

Asn Tyr Asp Gly Ser Gln His Gly Val Phe Thr Asn Lys Pro Gly Gln
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Leu Ser Asn Asp Phe Phe Val Asn Leu Leu Asp Leu Asn Thr Lys Trp
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Arg Ala Ser Asp Glu Ser Asp Lys Val Phe Glu Gly Arg Asp Phe Lys
        675                 680                 685

Thr Gly Glu Val Lys Trp Ser Gly Thr Arg Val Asp Leu Ile Phe Gly
    690                 695                 700

Ser Asn Ser Glu Leu Arg Ala Leu Ala Glu Val Tyr Gly Cys Ala Asp
705                 710                 715                 720

Ser Glu Glu Lys Phe Val Lys Asp Phe Val Lys Ala Trp Ala Lys Val
                725                 730                 735

Met Asp Leu Asp Arg Phe Asp Leu Lys
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